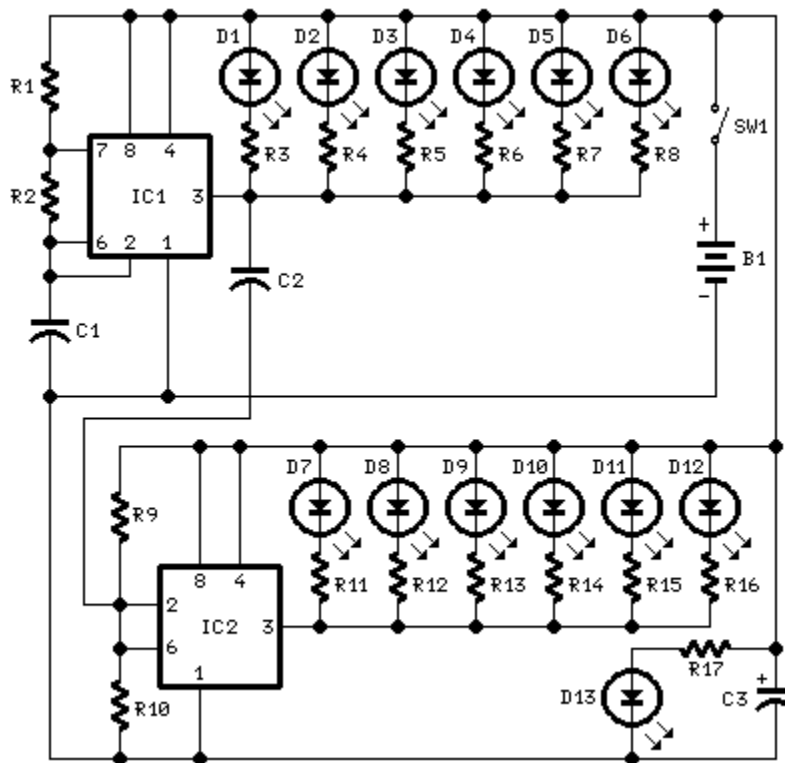


Bicycle back Safety Light

Flashing 13 LED unit, 3V supply
Also suitable for jogger/walkers

Circuit diagram:



Parts:

R1_____10K	1/4W Resistor
R2,R9,R10_____100K	1/4W Resistors
R3-R8,R11-R16___10R	1/4W Resistors
R17_____150R	1/4W Resistor
C1_____1μF	63V Polyester Capacitor
C2_____10nF	63V Polyester Capacitor
C3_____100μF	25V Electrolytic Capacitor
D1-D13_____Red LEDs	5mm. or bigger, high efficiency
IC1,IC2_____7555	or TS555CN CMOS Timer IC

SW1_____SPST Slider Switch

B1_____3V Battery (2 AA 1.5V Cells in series)

Device purpose:

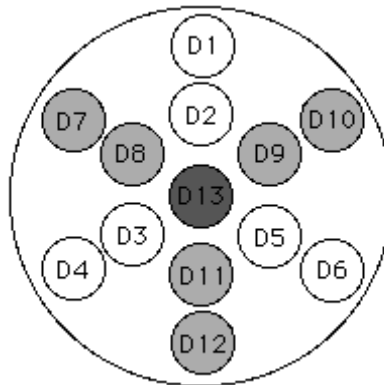
This circuit has been designed to provide a clearly visible light, formed by 13 high efficiency flashing LEDs arranged in a pseudo-rotating order. Due to low voltage, low drain battery operation and small size, the device is suitable for mounting on bicycles as a back light, or to put on by jogger/walkers.

Circuit operation:

IC1 is a CMOS version of the 555 IC wired as an astable multivibrator generating a 50% duty-cycle square wave at approx. 4Hz frequency. At 3V supply, 555 output (pin 3) sinking current operation is far better than sourcing, then LED D1-D6 are connected to positive supply. In order to obtain an alternate flashing operation, a second 555 IC is provided, acting as a trigger plus inverter and driving LEDs D7-D12. D13 is permanently on.

The LEDs are arranged in a two series display as shown below, with a center LED permanently on. This arrangement and the alternate flashing of the two series of LEDs provide a pseudo-rotating appearance.

LED arrangement:



Notes:

- | Flashing frequency can be varied changing C1 value.
 - | High efficiency LEDs are essential.
-